

First Named: Dan Matlock
Title: Rotational Light Emitting Display Apparatus
Serial No: 10/775,694
Docket No: Matlock.001
March 11, 2008
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AMENDMENT IN THE CLAIMS

Claims 1-39 (canceled):

Claim 40 (currently amended):

A light emitting display apparatus for displaying a stationary or animated image on a rotating object, such as, for example, a wheel of a vehicle, the light emitting display apparatus comprising:

- a support attachable to the rotating object so as to having the same center of rotation as the rotating object;

- a plurality of light emitting elements on said support and arranged in one or more generally parallel columns;

- one or more image maps of an image to be displayed, each image map including an array of plurality of columns;

- a means for sensing the rotational position of said support about the center of rotation and generating a signal;

- a microcontroller attached to each of said plurality of light emitting elements, said microcontroller ~~receiving~~ receives said signal and ~~operating~~ operates to select an image map and a column from said selected image map in accordance with said signal and configured to illuminate one or more of said light emitting elements in accordance with ~~said~~ the selected image map, the said selected column and said signal, thereby displaying said image as said support is rotated about the center of rotation so as to be viewed by humans; and

- a power source connected to and providing electrical power to said microcontroller.

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Claim 41 (new):

The apparatus of claim 40, wherein said microcontroller further operates to define a delay period and is further configured to illuminate one or more of said light emitting elements in accordance with said selected image map, said selected column, said signal, and said delay period.

Claim 42 (new):

The apparatus of claim 41, wherein said microcontroller determines the rotational frequency of said support from said signal and from said rotational frequency determines the linear velocity of the object to which said support is attached, and wherein said image is of a speedometer which dynamically displays said linear velocity.

Claim 43 (new):

The apparatus of claim 41, wherein said microcontroller determines the rotational acceleration of said support from said signal and from said rotational acceleration determines the linear acceleration of the object to which said support is attached, and wherein said image is of an accelerometer which dynamically displays said linear acceleration.

Claim 44 (new):

The apparatus of claim 41, wherein the object is a vehicle wheel and said microcontroller is encoded with the radius of the wheel and the vehicle mass to which the vehicle wheel is mounted, and further wherein said microcontroller determines the rotational acceleration of said support from said signal and from said rotational acceleration determines the linear acceleration of the wheel, and then using said linear acceleration determines the power of the vehicle using the said linear acceleration, the vehicle mass,

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and the radius of the wheel, and further wherein said image is of a vehicle instrumentation which dynamically displays the determined power of the vehicle.

Claim 45 (new):

The apparatus of claim 40, wherein said microcontroller determines the rotational frequency of said support from said signal and using said rotational frequency determines the linear velocity of the object to which said support is attached, and wherein said image is of a speedometer which dynamically displays said linear velocity.

Claim 46 (new):

The apparatus of claim 40, wherein said microcontroller determines the rotational acceleration of said support from said signal and using said rotational acceleration determines the linear acceleration of the object to which said support is attached, and wherein said image is of an accelerometer which dynamically displays said linear acceleration.

Claim 47 (new):

The apparatus of claim 40, wherein the object is a vehicle wheel and said microcontroller is encoded with the radius of the wheel and the vehicle mass to which the vehicle wheel is mounted, and further wherein said microcontroller determines the rotational acceleration of said support from said signal and using said rotational acceleration determines the linear acceleration of the wheel, and then using said linear acceleration determines the power of the vehicle using the said linear acceleration, the vehicle mass, and the radius of the wheel, and further wherein said image is of a vehicle instrumentation which dynamically displays the determined power of the vehicle.

Claim 48 (new):

A light emitting display apparatus, comprising:

- a wheel attached to a vehicle;
- a support attached to said wheel so as to having the same center of rotation as the rotating object;
- a plurality of light emitting elements on said support and arranged in one or more generally parallel columns;
- one or more image maps of an image to be displayed, each image map including an array of plurality of columns;
- a means for sensing the rotational position of said support about the center of rotation and generating a signal;
- a microcontroller attached to each of said plurality of light emitting elements, said microcontroller receiving said signal and operating to select an image map and a column from said selected image map in accordance with said signal, and operating to define delay period in accordance with said signal, said microcontroller configured to illuminate one or more of said light emitting elements in accordance with said selected image map, said selected column, said signal and said delay period, thereby displaying said image as said support is rotated about the center of rotation so as to be viewed by humans; and
- a power source connected to and providing electrical power to said microcontroller.

Claim 49 (new):

The apparatus of claim 48, wherein said microcontroller determines the rotational frequency of said wheel from said signal and using said rotational frequency determines the linear velocity of said wheel, and wherein said image is of a speedometer which dynamically displays said linear velocity.

Claim 50 (new):

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The apparatus of claim 48, wherein said microcontroller determines the rotational acceleration of said wheel from said signal and using said rotational acceleration determines the linear acceleration of said wheel, and wherein said image is of an accelerometer which dynamically displays said linear acceleration.

Claim 51 (new):

The apparatus of claim 40, wherein said microcontroller is encoded with the radius of said wheel and the vehicle mass to which said wheel is mounted, and further wherein said microcontroller determines the rotational acceleration of said wheel from said signal and using said rotational acceleration determines the linear acceleration of said wheel, and then using said linear acceleration determines the power of the vehicle using said linear acceleration, the encoded vehicle mass, and the encoded radius of said wheel, and further wherein said image is of a vehicle instrumentation which dynamically displays the determined power of the vehicle.